IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Varanasi et al.	]	Art Unit 1762
Serial No. 10/765,256	]	Examiner: B. Chen
Filed: January 26, 2004	]	Confirmation No: 9581
For: DEPOSITION OF IRON OXIDE COATINGS ON A GLASS SURFACE	]	Attorney Docket: 1-15610

January 12, 2010

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Honorable Sir:

This brief is in response to the Examiner's Answer of November 12, 2009 and supplements the brief of July 13, 2009.

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3. Status of Claims

On May 11, 2009, applicant submitted a Notice of Appeal in connection with the subject application, appealing the rejection of claims 1-14, 16-20 and 27-29.

The status of each of the claims is as follows:

1. Claims cancelled: 15 and 21-26;
2. Claims withdrawn from consideration but not cancelled: None;
3. Claims pending: 1-14, 16-20 and 27-29;
4. Claims allowed: None;
5. Claims rejected: 1-14, 16-20 and 27-29.

The claims on appeal are 1-14, 16-20 and 27-29.

6. Grounds for Rejection to be Reviewed on Appeal

On January 15, 2009, the Examiner issued an Office Action in connection with the present application. The Office Action was made final. The Examiner rejected the claims as follows:

A) Claims 1-14, 16-20 and 29 were rejected under 35 USC §103 as being unpatentable over Halaby (US 3,892,888) in view of Robinson et al (US 2002/0135099) or vice versa and further in view of McCurdy (US 6,238,738)..

B) Claims 27 and 28 were rejected under 35 USC §103 as being unpatentable over Halaby in view of Robinson et al or vice versa and further in view of McCurdy, and further in view of Higby (US 5,780,372).

7. Arguments

Claims 1-14 and 28 stand or fall together and will be argued collectively herein, in particular with regard to independent claim 1.

Claims 16-20 and 25-27 stand or fall together and will be argued together herein.

Rejection of claims 1-14

The invention as claimed in claim 1 defines a method for depositing an iron oxide coating on a glass article by atmospheric pressure chemical vapor deposition in an on-line float glass process. The method comprises providing a heated glass substrate having a surface on which the coating is to be deposited. Ferrocene and an oxidant are premixed to form a uniform gaseous precursor mixture. The precursor mixture is directed toward and along the surface to be coated and reacted at or near the surface of the glass substrate to form an iron oxide coating. The iron oxide coating formed thereby is primarily in the form of Fe_2O_3.

The Halaby reference cited by the Examiner is addressed to a method of producing a magnetic recording or storage device. Halaby teaches the deposition of an iron coating, or an α-ferric oxide film on a substrate, which may be glass, and converting the film to a magnetite film or a γ-ferric oxide film through extended exposure to a reducing atmosphere at high temperature. The film is produced through a chemical vapor deposition process which does not need to be sealed off from the outside atmosphere (thus can apparently be at atmospheric pressure).

The Robinson reference discloses a method and system for fabricating articles made from thermoset resins using an ionic mold release agent. Robinson teaches that float glass having a tin oxide enriched surface can be provided with an ionic release agent externally to the tin oxide surface (paragraph 9). Paragraph 35 notes that a thin metal coating can be applied to the "air side" of a float glass for formation of the mold through, for example, CVD.

The Examiner has added the McCurdy reference to show the conventionality of using a precursor mixture to form the metal oxide.

Applicant maintains the arguments filed in the original brief. However, applicant would like to further emphasize what we believe is the inappropriateness of the combination of the off-line process of Halaby with the on-line process of the Robinson reference.

As noted previously the chemistries of on-line float processes and off-line processes can be, and usually are, significantly different. Temperatures and other conditions that are appropriate for on-line processes are often completely inappropriate for off-line processes. The inclusion of the chemicals of the Robinson reference in the off-line process of Halaby, or vice versa, would not have predictable results to one skilled in the art. With the conditions being as different as they are between on-line and off-line processes, the result of including the materials of a batch process into an on-line process would not be predictable. Reaction rates, impurities, thicknesses, and even the possibility of a chemical reaction in the first place are just a few examples of results that depend on conditions of the process. Without the likelihood of a predictable, positive outcome, one skilled in the art would not be motivated to combine the off-line process of

Halaby with the on-line process of Robinson. One skilled in the art would not predict the results of the present invention from the combination of an on-line process with an off-line process. Such a prediction would only be possible through the use of improper hindsight analysis.

The reactions occurring in an on-line process are different from those of an off-line process. One skilled in the art cannot predict the results of using the materials of one of those processes in the other process.

In light of the forgoing, it is submitted that independent claim 1 is distinguishable over the applied art of record. Claims 2-14 depend on claim 1 and are believed to be allowable based, at least, upon this dependence.

Rejection of Claim 28

Claim 28 depends from claim 1, which is believed to be allowable for the reasons stated above, and is believed to be allowable based, at least, on this basis.

Rejection of claims 16-20, 25 and 26

Claim 16 is similar to claim 1, in that it defines a method of utilizing ferrocene in an atmospheric pressure chemical vapor deposition process which occurs in an on-line float glass process to form an iron oxide layer on a substrate. The ferrocene and an oxidant are premixed and delivered to the substrate for use in the chemical vapor deposition process, and the iron oxide layer formed is primarily Fe_2O_3. An additional coating is applied between the iron oxide coating and the substrate.

Again, Halaby is addressed to a method of producing a magnetic recording or storage device. Halaby teaches the deposition of an iron coating, or an α-ferric oxide film on a substrate, which may be glass, and converting the film to a magnetite film or a γ-ferric oxide film through extended exposure to a reducing atmosphere at high temperature. The film is produced through a chemical vapor deposition process which does not need to be sealed off from the outside atmosphere (thus can apparently be at atmospheric pressure).

The Robinson reference discloses a method and system for fabricating articles made from thermoset resins using an ionic mold release agent. Robinson teaches that float glass having a tin oxide enriched surface can be provided with an ionic release agent externally to the tin oxide surface (paragraph 9). Paragraph 35 notes that a thin metal coating can be applied to the "air side" of a float glass for formation of the mold through, for example, CVD.

The Examiner has again cited the McCurdy reference to show the conventionality of using a precursor mixture to form the metal oxide.

Claims 16 and the claims dependent thereon are believed to be allowable for the reasons previously stated. However, as was noted above with respect to claim 1, applicant would like to further emphasize what we believe is the inappropriateness of the combination of the off-line process of Halaby with the on-line process of the Robinson reference and the float process of McCurdy.

As noted previously the chemistries of on-line float processes and off-line processes can be, and usually are, significantly different. Temperatures and other conditions that are appropriate for on-line processes are often completely inappropriate for off-line processes. The inclusion of the chemicals of the Robinson reference in the off-line process of Halaby, or vice versa, would not have predictable results to one skilled in the art. With the conditions being as different as they are between on-line and off-line processes, the result of including the materials of a batch process into an on-line process would not be predictable. Reaction rates, impurities, thicknesses, and even the possibility of a chemical reaction in the first place are just a few examples of results that depend on conditions of the process. Without the likelihood of a predictable, positive outcome, one skilled in the art would not be motivated to combine the off-line process of Halaby with the on-line process of Robinson. One skilled in the art would not predict the results of the present invention from the combination of an on-line process with an off-line process. Such a prediction would only be possible through the use of improper hindsight analysis.

The reactions occurring in an on-line process are different from those of an off-line process. One skilled in the art cannot predict the results of using the materials of one of those processes in the other process.

In light of the forgoing, it is submitted that independent claim 16 is distinguishable over the applied art of record. Claims 17-20, 25 and 26 depend directly or indirectly from claim 16 and are believed to be allowable based, at least, upon this dependence.

Rejection of Claim 27

Claim 27 depends from claim 16, which is believed to be allowable for the reasons stated above, and is believed to be allowable based, at least, on this basis.

CONCLUSION

In view of the above arguments, it is therefore respectfully submitted that each of the independent claims are allowable over the applied art of record. As claims 1 and 16 are patentable for the reasons discussed, and as claims 2-14, 27-20 and 27-29 depend directly or indirectly from these independent claims, applicant submits these claims are likewise patentable. An expeditious determination by the Board to that effect is respectfully requested.

Respectfully submitted,

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